

WHAT IS CLAIMED IS:

- 1 1. A system comprising:
2 a hardware subsystem that includes at least one component adapted to
3 carry an electrical signal associated with one from the group of a sensing
4 operation and a control operation;
5 an application database storing application service configuration
6 information that corresponds to a manner of processing information associated
7 with the electrical signal; and
8 a self-configuring application services system comprising a configuration
9 module coupled to the hardware subsystem and coupled to retrieve application
10 service configuration information from the application database.
- 1 2. The system of claim 1, wherein:
2 the application service configuration information references a software
3 object for processing information associated with the electrical signal, and
4 the application services system further comprises the software object.
- 1 3. The system of claim 2, further comprising an object database storing a
2 version of the software object.
- 1 4. The system of claim 3, wherein the object database forms a portion of an
2 Object Database Management System.
- 1 5. The system of claim 1, further comprising:
2 a signal database storing interface configuration information
3 corresponding to a manner of managing communication between the hardware
4 subsystem and the application services system; and
5 a self-configuring interface system coupled to the hardware subsystem
6 and the application services system and comprising a configuration module
7 coupled to retrieve interface configuration information from the signal database.

1 6. The system of claim 5, wherein said interface configuration information
2 further references a software object that corresponds to a manner of processing
3 information associated with the electrical signal.

1 7. The system of claim 6, wherein the interface system further comprises the
2 software object.

1 8. The system of claim 7, further comprising an object database storing a
2 version of the software object.

1 9. The system of claim 8, wherein the object database forms a portion of an
2 Object Database Management System.

1 10. The system of claim 5, wherein the interface system communicates with
2 the hardware subsystem in accordance with the electrical signal, and
3 communicates with the application services system in accordance with an event
4 code that corresponds to the electrical signal.

1 11. The system of claim 7, wherein the interface system communicates with
2 the hardware subsystem in accordance with the electrical signal, and
3 communicates with the software object and the application services system in
4 accordance with an event code that corresponds to the electrical signal.

1 12. A system comprising:
2 a hardware subsystem that includes a set of components adapted to carry
3 electrical signals, each electrical signal associated with one from the group of a
4 sensing operation and a control operation;
5 an application database referencing a first software object that
6 corresponds to a manner of processing information associated with an electrical
7 signal;

8 a self-configuring application services system comprising:
9 a configuration module coupled to the hardware subsystem and
10 coupled to retrieve application service configuration information from the
11 application database; and
12 the first software object;
13 a signal database storing interface configuration information
14 corresponding to a manner of managing communication between the hardware
15 subsystem and the application services system and referencing a second
16 software object that corresponds to a manner of processing information
17 associated with an electrical signal; and
18 a self-configuring interface system coupled to the hardware subsystem
19 and the application services system and comprising:
20 a configuration module coupled to retrieve interface configuration
21 information from the signal database; and
22 the second software object.

1 13. The system of claim 12, further comprising an object database storing one
2 from the group of the first software object and the second software object.

1 14. The system of claim 13, wherein the object database forms a portion of an
2 Object Database Management System.

1 15. The system of claim 12, further comprising a network coupled to the
2 application services system and the interface system.

1 16. The system of claim 15, wherein the network comprises one from the
2 group of a Local Area Network, a Wide Area Network, and the Internet.

1 17. The system of claim 12, wherein the interface system communicates with
2 the hardware subsystem in accordance with the electrical signal, and

3 communicates with the application services system in accordance with an event
4 code that corresponds to the electrical signal.

1 18. The system of claim 12, wherein the interface system communicates with
2 the hardware subsystem in accordance with the electrical signal, and
3 communicates with the second software object and the application services
4 system in accordance with an event code that corresponds to the electrical
5 signal.

1 19. The system of claim 12, wherein the interface system further comprises a
2 signal exchange module coupled to the hardware subsystem, the signal
3 exchange module comprising a storage element for storing a hardware signal
4 corresponding to an electrical signal.

1 20. The system of claim 12, wherein the interface system further comprises:
2 a signal exchange module coupled to the hardware subsystem, the signal
3 exchange module comprising a storage element for storing a hardware signal
4 corresponding to an electrical signal; and
5 an event coding-decoding module coupled to map between an electrical
6 signal and an event code.

1 21. The system of claim 12, wherein the interface system further comprises:
2 a signal exchange module coupled to the hardware subsystem, the signal
3 exchange module comprising a storage element for storing a hardware signal
4 corresponding to an electrical signal;
5 an event coding-decoding module coupled to map between an electrical
6 signal and an event code; and
7 an interprocess communication module coupled to manage event-based
8 communication with the application services system.

1 22. The system of claim 12, wherein the interface system further comprises:
2 a signal exchange module coupled to the hardware subsystem, the signal
3 exchange module comprising a storage element for storing a hardware signal
4 corresponding to an electrical signal;
5 an event coding-decoding module coupled to map between an electrical
6 signal and an event code; and
7 an interprocess communication module coupled to manage event-based
8 communication with the application services system and the second software
9 object.

1 23. In a system comprising a hardware subsystem that includes a set of
2 components adapted to carry electrical signals, each electrical signal associated
3 with one from the group of a sensing operation and a control operation, a method
4 for processing an electrical signal comprising the steps of:
5 retrieving application service configuration information that references a
6 software object that includes program instructions directed toward processing the
7 electrical signal;
8 retrieving a software object in accordance with the application service
9 configuration information;
10 retrieving interface configuration information corresponding to the
11 hardware subsystem; and
12 automatically generating a hardware interface for managing
13 communication between the software object and the hardware subsystem in
14 accordance with the interface configuration information.

1 24. The method of claim 23, wherein the software object is retrieved from an
2 object database.

1 25. The method of claim 23, wherein the software object is retrieved from an
2 Object Database Management System.

1 26. The method of claim 23, further comprising the step of establishing a
2 mapping between the electrical signal and an event code.

1 27. The method of claim 26, further comprising the steps of:
2 managing communication between the hardware subsystem and
3 the interface system in accordance with the electrical signal; and
4 managing communication between the interface system and the
5 software object in accordance with the event code.

1 28. The method of claim 23, wherein the hardware interface is associated with
2 a first computer system, and the software object is associated with a second
3 computer system.

1 29. In a system comprising a hardware subsystem that includes a set of
2 components adapted to carry electrical signals, each electrical signal associated
3 with one from the group of a sensing operation and a control operation, a method
4 for processing electrical signals comprising the steps of:

5 retrieving application service configuration information that associates a
6 first set of software objects with at least one electrical signal;

7 retrieving the first set of software objects in accordance with the
8 application service configuration information;

9 retrieving interface configuration information that corresponds to the
10 hardware subsystem and which associates a second set of software objects with
11 at least one electrical signal; and

12 automatically generating a hardware interface for managing
13 communication between the software object and the hardware subsystem in
14 accordance with the interface configuration information.

1 30. The method of claim 29, wherein the first and second sets of software
2 objects are retrieved from an object database.

1 31. The method of claim 29, wherein the first and second sets of software
2 objects are retrieved from an Object Database Management System.

1 32. The method of claim 29, further comprising the step of establishing
2 mappings between a set of electrical signals and a set of event codes for those
3 electrical signals associated with software objects within the first set of software
4 objects.

1 33. The method of claim 32, further comprising the steps of:
2 managing communication between the hardware subsystem and the
3 interface system in accordance with the set of electrical signals; and
4 managing communication between the interface system and the first set of
5 software objects in accordance with the set of event codes.

1 34. The method of claim 29, further comprising the step of establishing
2 mappings between a set of electrical signals and a set of event codes for those
3 electrical signals associated with software objects within the first and second sets
4 of software objects.

1 35. The method of claim 34, further comprising the steps of:
2 managing communication between the hardware subsystem and the
3 interface system in accordance with the set of electrical signals; and
4 managing communication between the interface system, the first set of
5 software objects, and the second set of software objects in accordance with the
6 set of event codes.

1 36. The method of claim 29, further comprising the steps of:
2 executing program instructions associated with the first set of software
3 objects within a first computer system; and

4 executing program instructions associated with the second set of software
5 objects within a second computer system.

1 37. The method of claim 36, wherein the second computer system includes
2 the hardware interface.